UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,805	04/08/2004	Henrik Stender	58418-CIP (48497)	9064

21874 7590 04/16/2008

EDWARDS ANGELL PALMER & DODGE LLP
P.O. BOX 55874
BOSTON, MA 02205

EXAMINER	
JOHANNSEN, DIANA B	

ART UNIT	PAPER NUMBER
1634	

MAIL DATE	DELIVERY MODE
04/16/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/821,805	STENDER, HENRIK	
	Examiner	Art Unit	
	Diana B. Johannsen	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12 and 25-33* is/are pending in the application.

4a) Of the above claim(s) *32* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,25-31 and 33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

FINAL REJECTION

1. This action is responsive to the Amendment and Reply filed September 12, 2007 and the Amendment in Response to Office Communication filed December 18, 2007. Withdrawn claims 13-24 have been canceled. Claims 1-3, 8, 11-12, and 28-31 have been amended, and claims 32-33 have been added. New claim 32 has been withdrawn for the reasons given below. Accordingly, claims 1-12, 25-31, and 33 are now under consideration. Applicant's amendments and arguments have been thoroughly reviewed, but are not persuasive for the reasons that follow. Any rejections and/or objections not reiterated in this action have been withdrawn. **This action is FINAL.**

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. It is noted that the summary of the substance of the interview of August 29, 2007 included in the Response of December 18, 2007 has been reviewed and is complete and accurate.

Election/Restrictions

4. Newly submitted claim 32 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons. The claim is drawn to a PNA probe that is "complementary to a target sequence of 23S rRNA or rDNA of the species of the genus Pseudomonas selected from the group consisting of" a list of numerous pseudomonads. Thus, the claim is drawn to a probe specific to a single Pseudomonas species. In contrast, the probe of the elected invention is complementary to "all species of the genus Pseudomonas, except for Pseudomonas

pertucinogena" (see text of claim 1). It is also noted that (unlike new claim 33), new claim 32 does not require or recite SEQ ID NO: 1, the genus specific probe sequence recited in claims of the elected invention. Thus, the probe of new claim 32 differs both structurally and functionally from the probe of the elected invention. The elected invention and the invention of claim 32 are directed to related products. The related inventions are distinct if: (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant case, the inventions as claimed differ materially in design and function (as noted above), and further differ in effect, as the probe of the election invention detects a large group of different species, while the probe of claim 32 is species-specific. Furthermore, the inventions as claimed do not encompass overlapping subject matter and there is nothing of record to show them to be obvious variants. Additionally, a search of the different inventions would require the use of different text and sequence searches, such that a search of more than one of the elected invention and the invention of claim 32 would impose a serious search burden. Accordingly, had claim 32 been originally presented, it would have been restricted from the claims of the elected invention.

5. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, **claim 32 is withdrawn from consideration** as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Specification

6. The incorporation of essential material in the specification by reference to an unpublished U.S. application, foreign application or patent, or to a publication is improper. **Applicant is required to amend the disclosure to include the material incorporated by reference, if the material is relied upon to overcome any objection, rejection, or other requirement imposed by the Office.** The amendment must be accompanied by a statement executed by the applicant, or a practitioner representing the applicant, stating that the material being inserted is the material previously incorporated by reference and that the amendment contains no new matter. 37 CFR 1.57(f).

It is noted that applicant's reply of September 12, 2007 attempts to overcome rejections under 35 USC 112 in part by relying upon material present in non-patent literature publications that have been incorporated by reference into the specification. **However, in order to rely on such material, applicant must amend the disclose as noted above to include the material.**

Claim Rejections - 35 USC § 112, second paragraph

7. Claims 1-12, 25-31, and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, for the reasons given below and in the Office action of May 18, 2007.

First, it is noted that upon further consideration, the examiner concurs that the language "at least one detectable moiety" in claim 5 provides sufficient antecedent basis for the limitation "the detectable moiety or moieties" in claim 6.

Claim 12 remains indefinite over the recitation "wherein in situ hybridization is used for analysis of Pseudomonas (sensu stricto)." As claim 1 is drawn to a particular product, it is unclear how the recitation of claim 12 might be further limiting. The response traverses the rejection on the grounds that the specification teaches multiple methods that may be used for analysis of Pseudomonas. While this is acknowledged, it remains unclear how the recited language actually limits the features of the claimed product. Thus, this rejection is maintained.

Claims 26-27 remain indefinite because the claims appear to require particular types of method steps, while the claims are drawn to kits. It is not clear how the recitations of the claims limit the products that are claimed. The response does not traverse the rejection. This rejection is maintained.

THE FOLLOWING ARE NEW GROUNDS OF REJECTION NECESSITATED BY APPLICANT'S AMENDMENTS:

Claims 1-12 and 25-31 are indefinite over the recitation of the language "said PNA probe being complementary to a target sequence of 23S rRNA or rDNA of all species of the genus Pseudomonas, except for Pseudomonas pertucinogena." While applicant's amendment does clarify that P. pertucinogena is excluded from the claims, the number and type of bacteria associated with a particular genus is not fixed, but rather changes and evolves over time. As the recitation "all species of the genus

Pseudomonas, except for Pseudomonas pertucinogena" does not have a clear and fixed definition, the inclusion of this language in the claim therefore renders it indefinite.

Claims 28-31 are indefinite because the claims refer to the claimed kits being "used" in particular methods/assays. However, as the claims are to products (not methods), it is not clear how the manner in which the kits are used actually limits the products being claimed. The claims should be amended so as to make clear what features are actually required of the claimed products.

Claim 33 is indefinite over the recitation of the limitation "a target sequence of 23S rRNA or rDNA of the species of the genus Pseudomonas selected from the group consisting of: ….." The claim does not previously refer to a species or multiple species that might constitute "the species of the genus Pseudomonas," and it is not clear from this language whether the claim requires one species, all species, or, e.g., multiple species (e.g., at least 2 species, given the language "the species" as opposed to, e.g., "a species"). Further, as the specification discloses that SEQ ID NO: 1 should be complementary to all of the recited species, it is not clear how this language does or might further limit the claimed invention. Clarification is required.

Claim Rejections - 35 USC § 112, first paragraph

8. Claims 1-12 and 25-31 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application

was filed, had possession of the claimed invention, for the reasons stated in the prior Office action of May 18, 2007.

The response traverses the rejection on the following grounds.

First, the response argues that the definition at page 8 describes the species encompassed by the claims, and makes clear that Pseudomonas pertucinogena is excluded therefrom. These arguments have been thoroughly considered but are not persuasive. It is agreed that the specification at, e.g., page 8 makes clear the exclusion of P. pertucinogena. However, applicant's definition of "all species of the genus Pseudomonas" relies on material present in non-patent publications. As this material has been relied upon in an attempt to overcome the instant rejection, it constitutes essential material, and the incorporation by reference of such essential material is improper, as indicated above. Accordingly, applicant should properly amend the specification to include the essential material. Further, "subsequent revisions" that include material not known and not available at the time the invention was made (and therefore which could not have actually been incorporated as of the date of filing) cannot properly be incorporated in the specification or encompassed by the claims.

Second, the response also refers to the results reported in Table 1 as describing the species encompassed by the claims. This argument has been thoroughly considered but is not persuasive. It is noted that the data of the Table pertains only to a single species (SEQ ID NO: 1) that is encompassed by the claims. Further, the species listed in the Table are not actually recited in the claims. While a recitation of the species in the Table in the claim itself (as in, e.g., new claim 33) would be supported by the

descriptive material in the Table, the instant claims include no such recitation. Accordingly, applicant's arguments are not persuasive.

This rejection is maintained.

9. Claims 1-12 and 25-31 remain rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a PNA probe consisting of SEQ ID NO: 1, does not reasonably provide enablement for any probe "complementary to a target sequence of 23S rRNA or rDNA of all species of the genus Pseudomonas," including probes having a "portion" that "is at least about 90% identical" to SEQ ID NO: 1 and probes comprising any "variations" of SEQ ID NO: 1. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims, for the reasons stated in the prior Office action of May 18, 2007.

The response traverses the rejection on the following grounds.

First, the response traverses the rejection on the grounds that the invention is described, for the reasons given in the preceding paragraph. The examiner's reply to those arguments, which is also set forth in the preceding paragraph, applies equally herein.

Second, the responses states that the rejection indicated that "the specification does not disclose and exemplify the use of a single PNA probe having the sequence set forth in SEQ ID NO: 1," citing page 11 of the Office action, and presents a traversal of that statement. However, it appears that applicant misread the rejection, as the Office action actually states that the specification DOES disclose and exemplify this species.

Accordingly, applicant's arguments with regard to this statement are moot, as the examiner has already acknowledged that this particular species is enabled. However, the claims remain rejected for lack of enablement for the reasons given in the Office action of May 18, 2007.

Accordingly, this rejection is maintained.

Claim Rejections – 35 USC § 102

10. Claims 1-12 and 25-31 remain rejected under 35 U.S.C. 102(b) as being anticipated by Lexow (WO 00/39333 [7/2000]), for reasons set forth below and in the prior Office action of May 18, 2007.

The response traverses the rejection on the following grounds.

First, the response traverses the rejection on the grounds that "the '333 reference does not teach or suggest the use of the octamer probes of the invention for the detection, identification and/or quantitation of Pseudomonas (sensu stricto), where the probe is a PNA probe that is complementary to a target sequence of 23S rRNA or rDNA of all species of the genus Pseudomonas, or sequences complementary to the target sequence." This argument has been thoroughly considered but is not persuasive. The instant claims are not drawn, e.g., to a method in which the probes of the claims are employed in a particular way or used to achieve a particular objective; rather, the claims are drawn to products defined as having particular structural and functional properties. The probes of Lexow et al meet the requirements of the claims as written, and could be used by one skilled in the art to accomplish "detection, identification and/or quantitation of Pseudomonas (sensu stricto)". For example, an ordinary artisan could clearly employ

the octamers of Lexow et al in sequencing (as described by Lexow et al) to detect and/or identify and/or quantitate pseudomonads. Thus, the products of Lexow et al anticipate the claimed invention.

Second, the response argues that the '333 reference "only teaches PNA octamers." The response notes in one location that claim 3 has been amended to require "14-17 nucleobase subunits;" however, in fact the claim has actually been amended to state "9-17 nucleobase subunits" (as is referenced elsewhere in the reply). Thus, the claim as amended broadly encompasses any 9mer. Applicant's arguments have been thoroughly considered but are not persuasive. It is noted that only claim 3 has been amended to require a 9mer, and that neither claim 3 nor the claim from which it depends (claim 1) make any reference to the preferred sequence SEQ ID NO: 1. The octamer probes of Lexow et al continue to meet the requirements of claims 1-2, 4-12, and 25-31, for the reasons of record. Further, as Lexow et al teach the single base extension of any octamer (see, e.g., page 81), Lexow et al inherently disclose all possible 9mers, and anticipate the invention of claim 3 as amended.

As Lexow et al disclose probes and kits meeting all the requirements of instant claims 1-12 and 25-31, this rejection is maintained.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ludwig et al (Applied and Environmental Microbiology 60(9):3236-3244 [9/1994]) in view of Hyldig-Nielsen et al (US 6,169,169 B1 [01/2001]).

The claim is drawn to a PNA probe comprising SEQ ID NO: 1 that is "complementary to a target sequence of 23S rRNA or rDNA of "the species of the genus Pseudomonas selected from the group" recited in the claim or “sequences complementary to the target sequence.”

Ludwig et al disclose 23S rRNA partial sequences for a variety of Pseudomonas species, each of which includes an RNA sequence corresponding to the reverse complement of instant SEQ ID NO: 1 (see entire reference, particularly Figure 2); thus, Ludwig et al inherently disclose that instant SEQ ID NO: 1 exactly complements the 23S rRNA sequence of a variety of pseudomonads. It is also noted that an inspection of Figure 2 of Ludwig et al reveals that there are sequence differences between all pseudomonads and a variety of other bacterial species at the region corresponding to instant SEQ ID NO: 1 (see Figure 2). Thus, the teachings of Ludwig et al suggest that the region of 23S rRNA corresponding to instant SEQ ID NO: 1 is a suitable target for a genus-specific probe for pseudomonads. However, Ludwig et al do not teach a PNA probe comprising SEQ ID NO: 1, as is required by the instant claim.

Hyldig-Nielsen et al disclose PNA probes targeting the 23S rRNA or rDNA sequences of Neisseria gonorrhoeae and Chylamydia trachomatis (see entire reference). Hyldig-Nielsen et al disclose that probe sequences are selected that will hybridize to and identify target organisms of interest (see, e.g., col 4, line 55-col 5, line

24). Hyldig-Nielsen et al further disclose that PNA probes are advantageous as compared to DNA probes for a variety of reasons, e.g., because shorter probes may be used in sensitive assays, because PNA probes "allow greater flexibility in" assay format, and because hybridization can occur "under conditions not favorable for ordinary DNA probes" (see col 2, lines 37-57).

In view of the teachings of Ludwig et al and Hyldig-Nielsen et al, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have prepared a PNA probe comprising SEQ ID NO: 1 for use in detecting one or more Pseudomonas species. As noted above, Ludwig et al disclose that SEQ ID NO: 1 is the exact complement of 23S sequences of a variety of pseudomonads, and that it is not the exact complement of a variety of other species. Hyldig-Nielsen et al suggest selecting such complementary sequences for use in detecting target sequences of interest, and further suggest a variety of advantages of PNA probes as compared to DNA probes. Thus, an ordinary artisan would have been motivated to have prepared such a probe for the advantage of, and to achieve the predictable result of, preparing a PNA probe that could be used successfully in the specific detection of pseudomonads in a variety of assay formats and hybridization conditions, as suggested by the teachings of Ludwig et al and Hyldig-Nielsen et al. It is also noted that the product suggested by Ludwig et al in view of Hyldig-Nielsen et al could be used by one of skill in the art in a variety of methods "for the detection, identification and/or quantitation of Pseudomonas (sensu stricto)".

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Diana B. Johannsen whose telephone number is 571/272-0744. The examiner can normally be reached on Monday and Thursday, 7:30 am-4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached at 571/272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Diana B. Johannsen/
Primary Examiner, Art Unit 1634